

REMARKS

Applicant has reviewed and considered the Office Action dated May 20, 2005 and the references cited therein. Claims 1-65 are pending in the present application.

Rejections Under 35 USC § 102(e) 103(a)

Claims 1, 3-9, 15, 17-24, 26-36, 38-47, 49-58 and 60-65 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,737,716 Matsuo et al. (hereinafter "Matsuo"). Claims 2, 16, 25, 37, 48, & 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo in view of Morris. Claims 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo. Applicant respectfully traverses the rejections for at least the reasons below.

Claim 1 recites a method for manufacture of a device for regulating the flow of electrical current, the method comprising: providing for a semiconductor substrate; providing for an electrically insulating layer in contact with the semiconductor substrate, the insulating layer having a dielectric constant greater than 4.0; providing for a gate electrode in contact with at least a portion of the insulating layer; and providing a source electrode and a drain electrode in contact with the semiconductor substrate and proximal to the gate electrode wherein at least one of the source electrode and the drain electrode forms a Schottky contact or Schottky-like region with the semiconductor substrate.

Matsuo discloses a semiconductor device and method of manufacturing of the semiconductor device. More particularly, Matsuo discloses a method of manufacturing of the device comprising forming a metal compound film directly or indirectly on a semiconductor substrate, forming a metal-containing insulating film consisting of a metal oxide film or a metal silicate film by oxidizing the metal compound film, and forming an electrode on the metal-containing insulating film. However, Matsuo does not disclose or teach the step of providing a source electrode and a drain electrode in contact with the semiconductor substrate wherein at least one of the source electrode and the drain electrode forms a Schottky contact or Schottky-like region with the semiconductor substrate. The metal layer 316 and the silicide film 317 do not form a Schottky contact or Schottky-like region with the semiconductor substrate 300 (see at least Fig. 23I, column 30, line 56 to Column 32, line 65). In fact, a metal compound layer, such

as a silicide film 317, is formed selectively on the surface of the source/drain diffusion layer and does not contact the semiconductor substrate, and the metal layer 316 is removed. Furthermore, the source-drain diffused regions 305 as disclosed by Matsuo are formed by impurity doping using ion-implantation technology and will therefore form pn-junctions with the semiconductor substrate. Nowhere in Matsuo does it disclose or teach that the source/drain electrode forms a Schottky contact or Schottky-like region with the semiconductor substrate as recited in claim 1. On the contrary, in column 6, lines 19-59, Matsuo teaches to form a first metal film on an entire surface of the substrate after exposing the surface of the source-drain regions, applying a heat treatment to cause reaction between the source-drain regions and the first metal, and removing the unreacted first metal film, in order to selectively convert the surface region of the exposed portion of the source-drain regions into a silicide film which teaches away from forming a Schottky contact or Schottky-like region between the source/drain electrode and the semiconductor substrate as recited in claim 1. Therefore, Applicant respectfully submits that claim 1 patentably distinguishes over Matsuo.

The remaining independent and dependent claims also recite the above discussed features, thus, are patentable over Matsuo. Morris, a secondary reference, also fails to disclose or teach the above discussed features. Applicant respectfully submits that claims 1-65 are patentable over the cited references.

Conclusion

In view of the above, Applicant respectfully submits that the present application is in condition for allowance. Reconsideration of the present application and a favorable response are respectfully requested. If a telephone call would be helpful in resolving any remaining issues, please contact the undersigned at 612-752-7367.

Respectfully submitted,
DORSEY & WHITNEY LLP
Customer Number 25763

Date: Nov. 21, 2005

By: Min S. Xu
Min S. (Amy) Xu (Reg. No. 39,536)
(612) 752-7367